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ILLUSTRATIONS OF DESIGN

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1. A measure of space in two dimensions.
2. The measure changes its shape.
 - It changes its tone.
 - It changes both shape and tone.
3. Two or more measures become one by being balanced.

Equal measures balance on any straight line at equal distances from a given centre. When the measures are unequal they balance at distances inversely proportional to them. This is the principle of Symmetry.
4. Problem : Given a centre, to construct a symmetry.
5. Problem : Given certain measures in certain positions, to find the centre upon which they will balance, in symmetry.
6. Problem : Given a centre, and on one side of it a certain measure, to find the measures which will balance on the opposite side, at different distances.
7. In this case the measures are not multiples of an ascertainable unit, and we have to depend upon visual feeling to discover the centre of equilibrium.

Our feeling, however, is governed by our understanding of the principle just defined.

8. As two or more measures are reducible to one by Symmetry, so two or more shapes are reducible to one by Rhythm. In No. 7 the arrangement of the shapes is accidental. In this case it is rhythmical. The shapes are so placed that they make one movement, unmistakably. The measures thus composed have been balanced, and the centre of equilibrium is indicated to the beholder by the enclosing circle.

9. This is a movement (*fuga*, fugue, flight) in two dimensions of space, using the motive of No. 8.

10. Another rhythm; same measures or terms.

11. Another movement, using the motive of No. 10.

12. As measures are united by Symmetry, and shapes by Rhythm, so tones are united by Harmony; the harmony of colors and values. Take some white paint and some black paint. Observe that in painting there is no higher light than white, no darker darkness than black. White and black are the limits of the painter's art, so far as light is concerned. Make an even gradation from white to black. Mark the half, quarter, and eighth points of this gradation, and you have a scale of seven degrees or values between white and black (a). In order to raise the pitch of this scale substitute one of the dark grays

for black (b). In order to lower the pitch of the same scale you substitute one of the light grays for white (c).

13. The Spectrum Scale of Colors.

14. Take some Aureolin, Yellow Ochre, Burnt Sienna, Light Red, Vermilion, Rose Madder, Indian Red, French Blue, and Emeraude Green, or any other pigments that may be preferred, and translate the fourth (which is the middle value in the scale of values, see No. 12) into the three primaries of the Spectrum, Red (R), Violet (V), and Green (G); into their intermediates, Yellow (Y), Purple (P), and Blue (B); and into the intermediates of these six, Orange (O), Yellow-Green (YG), Blue-Green (BG), Blue-Violet (BV), Purple-Violet (PV), and Purple-Red (PR). As a result you have the twelve principal colors of the Spectrum keyed or tuned to the fourth value of the scale of values. Mix each color (color in its fourth value) with white, and raise it to the third, second, and first values. Mix each color with black, or some equivalent dark neutral, and lower the color to the fifth, sixth, and seventh values. The result is a color-instrument, or palette, composed of eighty-four color values or tones, with white and black. The colors being keyed or tuned to the fourth or middle value, the instrument is ready for

use. The range of this instrument can be increased, up to the limits of visual discrimination : 1. By the introduction of intermediate values. 2. By the introduction of intermediate colors. 3. By the introduction of both intermediate values and intermediate colors.

15. The pitch of the color-instrument shown in No. 14 is central. Here we have the primaries in high pitch (see No. 12).

16. Here we have the primaries in low pitch. The pitch can, of course, be lower than in this illustration, and higher than in No. 15.

Predominance can be given, in the color-instrument, 1, to white ; 2, to black (neutral dark); or, 3, to any one of the colors. In this case the other colors are neutralized, in the measure of their opposition. See No. 238, where predominance has been given to blue, and No. 239, where predominance has been given to yellow.

When it comes to Representation, which is the painting of objects in natural and true effects of light, the color of the light has to be taken into consideration, and the color-instrument has to be modified accordingly. All the colors in light have to be moved the fraction of a tone towards the color of the light, whatever that is ; towards yellow, if that is it.

This is most easily done by glazing over all the lights when the painting is finished. See No. 211.

17. This shows the effect of having the intensities of different colors in different values.

18. This shows the effect of having a color change its intensity without changing its value.

19. This design shows the errors defined in Nos. 17 and 18. It has a familiar look. We have seen it before; in the work of our classes in "Decoration and Ornament," and in our "Art Exhibitions" of all kinds, where "color is an inspiration," "something that cannot be taught."

When it comes to designing with such a color-instrument as we have shown in No. 14, still more perfectly tuned, as it ought to be, it is necessary to observe the principles of Symmetry and Rhythm. The instrument shows many rhythm or scale relationships. There is the scale of the perpendicular, the values of one color. There are twelve of these scales. There is the scale of the horizontal, the colors of one value. There are seven of these. Then there is the scale of the diagonal, in which there is a constant, simultaneous, change of colors and values. There are twenty-four of these. The diagonal lines can be drawn from any color in its fourth value in two directions. The color at one end of the instrument con-

nects with the color at the other end, making what is known as the spectrum circuit. On these various color-rhythms or scales we find the tones which balance in symmetry. Taking any one color in its fourth value as the keynote and centre of tone-equilibrium, those tones balance which are equally distant from the keynote, when in the same measures or quantities. When the tones are unequally contrasted with the keynote they vary inversely with their measures.

The principles which have been described and defined, the principles of Symmetry, Rhythm, and Harmony can be understood only through personal effort, and by means of experiments. Those who make no experiments will not understand them. To show how the principles have been reached, an exhibition of experiments has been arranged.

20-56. Experiments by D. W. R., rendered in several cases (Nos. 24, 25, 28, 31, 35, 36, 37, 55) by Edgar O. Parker.

57-67. Experiments by Marcus Fridolf Jacobsen (thirteen years old).

68-143. Experiments by Edgar O. Parker.

144-164. Experiments by Clifford Patchett (Second Artillery), Nos. 146, 150, rendered by Edgar O. Parker.

- 165-172. Experiments by Henry Hunt Clark.
173. Experiment by Marian F. Winnek.
174-176. Experiments by Emily D. Norcross.
177-181. Experiments by Herbert Gregson.
182. Experiment of Joseph Lindon Smith. The tracing paper is equivalent to a white glazing.

What are they good for, all these designs? Pure Design, that is to say measures, shapes, and tones, in Symmetry, Rhythm, and Harmony, appeals to the eye precisely as Music appeals to the ear. When we hear music we do not ask what it is good for, nor should we ask this question when we see a design. The sooner we give up the idea that Art is Ornament and Decoration the better. Art is simply doing something, whatever it is, just as well as it can be done. Given a few spots and tones of paint, the problem is, to arrange them just as well as they can be arranged. We seek the arrangement which will show the greatest number of connections making unity. The simplest and most consistent arrangement is in all cases the best. To discover it and set it forth is an intellectual exercise, an intellectual achievement, of the highest order. To ask whether it is better for a silk dress or a wall paper is like asking whether a movement of Bach is better for a dance or a funeral.

183-184. Experiments in Representation by Robert D. Gauley.

185-246. The studies which follow are various attempts, made at different times, to apply the principles of Pure Design to Representation. In Symbolism, which lies between Pure Design and Representation each measure has a meaning by association, and the problem is to establish different connections of meaning, to convey different ideas. No. 158 is a symbolism of the Iris. No. 153 a symbolism of the Rose. No. 182 is a symbolism of the Sea and Mermaids. No. 52 describes a man attacked by wild beasts in a wilderness. Symbolism with us is almost an affectation. As a rule, we express the thoughts of Symbolism far better in terms of language than we can express them in the measures, shapes, and tones of painting. For us Representation is, generally, a much more satisfactory form of expression. It is of course much easier to apply the principles of Pure Design in Symbolism than in Representation. In Representation the measures, shapes, and tones serve merely to produce a true effect of light, in which people and things (the different objects of interest) are seen as they might be seen in Nature; but the production of true effects of light in the terms of Pure Design, Symmetry, Rhythm, and Har-

mony is extremely difficult. It is indeed the most complicated and difficult problem which the painter has to solve. Most painters give it up, and devote themselves to imitation, pure and simple. The studies which are here shown are only studies; tentative, experimental, and for the most part unfinished. Not more than two hours have been spent upon any one of them, and they must be judged accordingly. The drawing is in many cases bad, the modelling incomplete; but it would not be difficult to correct these errors without disturbing the composition of measures, shapes, and tones, which has, in each case, been carefully considered. The problem of Pure Design in Representation has not been solved in these studies, but the conditions of the problem have been stated, which is the sole object of the exhibition.